CLAIMS:

1. A computed tomography method comprising the steps of:

a) generating, using a radiation source (S) and a diaphragm arrangement (31) which is arranged between the examination zone (13) and the radiation source (S), a fan beam (41) which traverses an examination zone (13) or an object present therein,

b) generating relative motions, comprising a rotation about an axis of rotation (14), between the radiation source (S) on the one side and the examination zone (13) or the object on the other side,

c) acquiring measuring values which are dependent on the intensity of the radiation by means of a detector unit (16) which detects, during the relative motions, the primary radiation from the fan beam (41) and radiation which is coherently scattered in the examination zone (13) or on the object,

d) reconstructing a CT image of the examination zone (13) from the measuring values, during which reconstruction a back projection is carried out in a volume which is defined by two linearly independent vectors of the rotational plane and a wave vector transfer.

2. A computed tomography method as claimed in claim 1, in which the back projection during the reconstruction step d) is performed along rays having a curved shape.

3. A computed tomography method as claimed in claim 1, in which prior to the back projection in the reconstruction step d) the measuring values are multiplied by a first weighting factor which corresponds to the square of the distance between the scatter center, at which the detected ray was scattered, and the point of incidence of the scattered ray on the detector unit, and by a second weighting factor which corresponds to the reciprocal value of the cosine of the scatter angle.

4. A computed tomography method as claimed in claim 3, in which prior to the back projection in the reconstruction step d) all measuring values for each radiation source position are multiplied by a weighting factor which corresponds to the reciprocal value of the

square of the distance between the radiation source position and the scatter center at which the detected ray was scattered.

5. A computed tomography method as claimed in claim 1, in which the reconstruction step d) comprises the following steps:

- one-dimensional filtering of the measuring values in the direction parallel to the rotational plane,
- rebinning of the measuring values so as to form a number of groups, each measuring value measured by a detector element being associated with a line from the detector element to the radiation source position and each group comprising a plurality of planes which are parallel to one another and to the axis of rotation and in which a respective line fan (411 ... 415) is situated,
- reconstruction of the distribution of the scatter intensity from the measuring values, a back projection then being carried out in a volume which is defined by two linearly independent vectors of the rotational plane and a wave vector transfer.

6. A computer tomograph for carrying out the method claimed in claim 1, comprising

- a radiation source (S) and a diaphragm arrangement (31) which is arranged between the examination zone (13) and the radiation source (S), in order to generate a fan beam (41) which traverses an examination zone (13) or an object present therein,
- a detector unit (16) which is coupled to the radiation source (S) and comprises a measuring surface (17),
- a drive arrangement (2, 5) for displacing an object present in the examination zone (13) and the radiation source (S) relative to one another about an axis of rotation (14) and/or parallel to the axis of rotation (14),
- a reconstruction unit (10) for reconstructing the distribution of the scatter intensity within the examination zone from the measuring values acquired by the detector unit (16),
- a control unit (7) for controlling a radiation source (S), the detector unit (16), the drive arrangement (2, 5) and the reconstruction unit (10) in conformity with the steps a) to d) of claim 1.

7. A computer program for a control unit (7) for controlling a radiation source (S), a diaphragm arrangement (31), a detector unit (16), a drive arrangement (2, 5) and a reconstruction unit (10) of a computer tomograph so as to carry out the steps of claim 1.